EXAMINATION IN LINES AND CURVES.*

17. What is a parabola, and in what does it differ from the hyperbola? Give the description of the difference in words that an artist can understand.

18. Point out examples of applications of the parabolic form in architecture.

19. How are the terms convex and concave applied to lines?

20. What is a point of contrary flexure in a curve? and point out instances of different forms of inflected lines used in architecture.

21. What is a cusp of a curve or line, and what are their different varieties and modes of tracing them, or lines having them?

22. What is a node of a curve or line, and what are their different forms, and the simple means by which they may be traced? and shew also how parts or the whole of different nodes may be applied in architecture.

23. What is a waved curve or line, and what are their different varieties? Point out instances of their application in architecture.

24. Shew how by continuous motion a wave line may be drawn, having the quickest part of each convexity, and the quickest part of the concavity, of the same degree of curvature.

25. Shew how by continuous motion a gradation of waved lines may be drawn between a given form of a deep wave and a shallow one, and shew when such means would be useful in architecture.

26. Shew another example of a wave line when the curvature of the quickest part of one convexity is large, the quickest part of the concavity is less, and the quickest part of the next convexity still less.

27. What is a spiral line, and what are their different varieties? JOS. JOPLING.

STIMULANTS FOR ARCHITECTURAL STUDENTS.

THE Society of Arts offer their gold medallion for the best original design for a national edifice for the reception of monuments, statues, and busts of eminent public men deceased, with galleries to contain pictures commemorative of their deeds. The building to be designed in a classical style of architecture, and to be supposed to be placed on an eminence in the vicinity of London, as, for instance, Primrose Hill. The drawings to consist of a plan, elevation, and a transverse and longitudinal section to a scale of three-quarters of an inch to 10 feet, and a perspective view. Also a gold medallion for the best design for a hemispherical timber-roof, circular base plan 100 feet diameter; framed to admit of an aperture for light, in the centre, of 25 feet diameter. The quantity of timber to be specified in cubic feet, and likewise the weight of wrought and cast iron respectively. The design to consist of a plan and section, with such parts shewn as large as may be necessary to fully explain the mode of construction, and to be accompanied by a model of one quarter of the roof to a scale of not less than three-eighths of an inch to a foot. The model and drawings to be sent in on or before the third Tuesday in January, 1846; and, if rewarded, to become the property of the society.

They further offer rewards for

1. Any improvement in the construction, drainage, or ventilation of barns, stables, and other farm-buildings, or in the arrangement of a farm-yard, or in the construction and hanging of gates.

2. For the best method of constructing economical and durable fencing for agricultural puposes, particularly as relates to the preservation of posts and other timbers inserted in the ground.

3. For any improvement in the method of building, heating, ventilating, and managing hot-houses, conservatories, or other constructions for similar purposes.

TENNIEL'S CARTOON.—We are glad to learn that the coloured sketch exhibited by Mr. Tenniel in Westminster Hall, to which in our review of the cartoons much commendation was awarded, has been purchased for 100 guineas by Mr. Lewis Pocock, F.S.A., the able honorary secretary to the Art-Union of London.

* See page 340 ante.

DOMESTIC CHAPELS.

THE retention of domestic chapels was one of the last vestiges of old piety to yield to modern indifference. The custom of attaching chapels to mansions of commanding dignity survived even the shock of the outbreak of 1688: nay in the palaces of Blenheim and Chatsworth, built by two of the chief actors in that scene, they are to be found; while, to quote a still later case, when during the last century a modern dwelling was reared within the walls of Warwick Castle, the chapel was not forgotten. Such chapels of course are quoted not as models, but as instances. It was reserved for another generation utterly to alienate private pomp from gratitude to The Giver of all good things. Now, as may be supposed, people are again beginning to require them, and we may be reasonably accused of neglect for not having sooner treated on the subject.

Regarding the stile of the chapel, if the house be of any period of pointed architecture, or if it be of that no-stile so frequent in our rural abodes, there will, we trust, be little doubt that the only style in which it can possibly be built is the middle pointed. If, however, the chapel have to be attached to an Italian villa, there is less unreasonableness in questioning whether or not it should correspond with the style of the mansion to which it is to be adjoined. But we have no doubt as to what ought to be done. We should say to the proprietor: boldly acknowledge the former mistake, and let your chapel at least be in correct style, and the first fruits of your amended taste. (?) It is no part of our office to recommend second-best courses, and therefore we shall say no more about style. Ancient canons forbid the placing of living apartments *over* a consecrated building, and reverence would equally counsel against their standing under them, when, as in the case of a country house, there is no lack of surrounding space to occupy. Therefore our chapel must be detached from the adjoining buildings, and if possible should be further separated from the rest of the house by a sort of cloister; and the chaplain's apartment too (which may be adapted to serve also as a sacristy) should rather range with the sacred building, than be merely one or two rooms of the secular portion of the house; if, that is, it be intended that he should not degenerate into a carpet-parson,—a risk very possible,—one which has innumerable times occurred, and should in every legitimate way be avoided.

Domestic chapels form, just as much as cathedrals, parish churches, college chapels, cemetery chapels, a distinct genus of places of worship, and like other genera have their own peculiar rules, to be deduced from the nature of the case, to govern their construction and arrangement. At first sight it might be imagined that the college chapels would be a safe guide to follow in their arrangement: there is, however, this cardinal difference between the two, that college chapels are for the use of a community in its nature religious,—domestic, for one in its nature lay. Thence it arises that the internal disposition of the one will be totally different from that of the other. College chapels, being for the sole use of a religious body, are all choir, the nave being reduced to the functions and dimensions of a mere ante-chapel. Domestic chapels, on the other hand, only require, as a general rule, the chancel of one priest, the congregation being disposed in the nave, and therefore the chancel should not bear a greater proportion to the nave than the one does to the other in a parish church. We do not here refer to episcopal chapels, which should be treated separately, but of which we may venture to assert that they bear, or should bear, considerable affinity to college chapels, and that therefore while accommodation is provided for the lay members of the household in the nave, ample room should be afforded in the stalls for the bishop and his clerks. Again, from the limited dimensions of the domestic chapel, coupled with the privacy which invests it as a place of family worship, it is unnecessary for the distinction between the nave and the chancel to be indicated by any external difference of size.

Externally the lofty roof should be crowned with a cross, and the whole architecture should be of an ornate cast. Internally the architect must be especially careful not to make the building toy-like, and a Lilliputian imitation of more vast religious structures. The desire of giving the greatest satisfaction to his patron, may not improbably make him incur the risk of doing this. For instance, the roof need not always be groined. On the other hand, he should be still more careful to admit nothing that was not, in proportion to the means of the householder, very costly. The chapel should always be the richest apartment in the house, and this in these days of exceeding luxury is not saying a little.

The chancel, which should be raised at least a step, will of course be screened off from the nave, and contain all the requisite furniture, including stalls for such clerks as may from time to time be inmates of the house.

The ancient distinction of the sexes should be invariably maintained in the arrangement of the nave, the men occupying the south, and the women the north side. The chapel of Haddon Hall has aisles to the nave, of which the north is very narrow and unoccupied, but the south still retains its open seats. This chapel is in itself very picturesque, but we should not recommend it as a model; it is far too like a parish church in miniature. Aisles are both cumbersome and unnecessary in domestic chapels.

The nave will contain both lettern and litany-stool; on *no account* however a font. As an article of general use a font is unnecessary in a private chapel, as an ornament worse than meaningless, as a provision for cases of emergency a dangerous temptation.

The entrance, if possible, should be either on the north or south side, and as we have before said, from a sort of cloister. The arrangement of the belfry, and its nature, must depend upon circumstances. We need not say that orientation must be attended to.—*Ecclesiologist, New Series.*

IRON AND THE IRON TRADE.

A VERY important improvement in the manufacture of iron has been made by a Mr. Green, of New Jersey, effecting a saving in labour and material of 33 per cent. The process is a modification of Mr. Clay's patent for the production of iron direct from the ore by the use of anthracite, and is as follows:—six tons of pulverised iron ore are mixed with two tons of anthracite coal dust, and the whole poured in at the top of a reverberatory furnace upon the slag bed below; it is then to be worked into a loose granulated mass, and pushed to the furthest end of the hearth: four tons of cast pig-iron are then to be introduced, and, when at a white heat, it is to be heaped on the already half fused ore, and worked up into balls, to be treated in the same way as if the whole were pig metal. It is expected the process will enable every furnace to double its make, and, of course to render the metal much cheaper.

At the late meeting of the British Association, at Cambridge, Mr. Watt read a report on the Iron Trade in Scotland, from which it appears that at the present moment there are extensive new iron-works erecting in Scotland, especially in Ayrshire and in Renfrewshire. At several of the old works considerable additions are being made to the number of furnaces now at work. The increase in the annual quantity of pig iron smelted in that country in April, 1845, amounts to 37·4 per cent. And there is every appearance that before another year expires, a similar increase will be made in the amount of iron produced in Scotland.

Sir J. Guest, of Dowlar's Works, in evidence before the Import Duties Committee, 1840, stated that—

The iron made at the beginning of this century amounted to	150,000 tons.
In 1806	258,000 ,,
In 1823	452,000 ,,
In 1825	581,000 ,,
In 1828	703,000 ,,
In 1835	1,000,000 ,,
In 1836	1,200,000 ,,
In 1840	1,500,000 ,,

Mr. Jessop, of the Butterley Works, estimated the annual produce in Great Britain, exclusive of Ireland in 1840, at 1,396,400 tons, and the quantity of coal used for smelting that quantity was 4,877,000 tons, besides 2,000,000 tons for converting into wrought-iron.

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